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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,398	03/19/2004	Russell W. Gruhlke	10030504-1	7356

7590 06/14/2005
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

PENG, CHARLIE YU

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,398

Applicant(s)

GRUHLKE, RUSSELL W.

Examiner

Charlie Peng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-20 is/are rejected.
- 7) ☒ Claim(s) 1 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/19/2004</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Claim Objections***

Claim 1 is objected to because of the following informalities: the phrases "one of the locations" on line 6 and "the other of the locations" on line 8 should be replaced by a phrase such as --one of the first or second locations-- and --the other of the first and second locations-- or the like. Appropriate correction is required.

Claim Rejections - 35 USC § 102

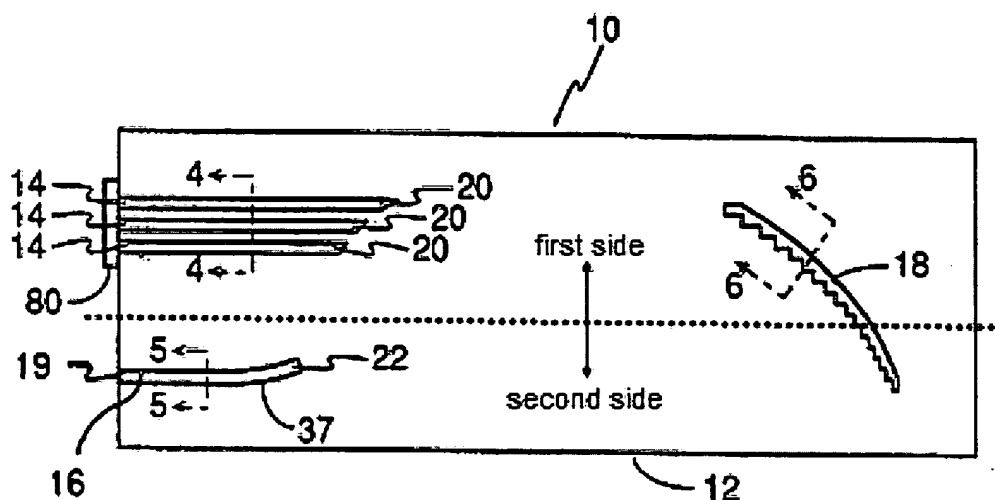
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent 5,351,262 to Poguntke et al. Poguntke teaches a substrate **12** having active waveguide strips **14**, a passive output waveguide **16**, and a diffractive grating **18** that is formed in a Rowland-circle focusing geometry to focus (See **Fig. 3**) input optical signals from the active waveguide strips **14** to the output waveguide **16**, all mounted thereon. (See at least **Fig. 1** and its descriptions) As illustrated in the following page, the active waveguide strips **14**, located on a first side of the substrate **12**, can be electrically pumped to output light (a concept of semiconductor lasers and LEDs) from their ends **20** to the diffraction grating **18**, which in turn focuses the light to an end **22** of the passive waveguide **16**, located on a second side of the substrate **12**.



With specific reference to claims 3 and 5, the diffractive grating **18** defines a plane that is parallel to axes of arrows **6** and perpendicular to the substrate's **12** main surface where all the optical components are mounted. The active and passive waveguides **14** and **16** have axes parallel to axes of arrows **4** and **5** and these axes are tilted (not parallel and can intersect if extended) with respect to the plane.

With specific reference to claims 4 and 6, Poguntke teaches in **Figs. 4-6** that the active waveguides **14** and the passive waveguides **16** are formed on steps-like portions (creating pedestals) on the substrate's surface, while the grating **18** is placed in a trench/channel **68**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3,774,987 to Boivin in view of US Patent 4,466,696 to Carney. Boivin teaches a substrate **16** with a diffractive grating **11** and an optical fiber **14** mounted on two opposite sides of the substrate. (See at least **Fig. 1** and its descriptions) A light signal **10** is received by the diffractive grating and directed to the optical fiber. Boivin does not teach an electro-optical device as disclosed in claim 1. Carney (who also discussed Boivin's work in Background of the Invention) teaches a semiconductor laser substrate **10** with an epitaxially grown laser **12-15** thereon, and the laser is placed on an opposite side to an optical fiber. Here, the laser and the optical fiber share a common axis. The laser is activated by two electrical contacts **16 & 17** (described but not shown on figures). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the laser, the grating, and the optical fiber all on the same substrate, (i.e., with the epitaxially grown laser placed to the left and on top of an extended portion of substrate **16** in **Fig. 1** or Boivin), since it has been held that the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice. In re Larson, 144 USPQ 347, 349 (CCPA 1965) The motivation would be that creating a piece structure eliminates the need for end users to align and install moving parts themselves. With reference to the focusing functionality of the grating, that has already been discussed by Poguntke. Since a diffractive grating functions by deflecting incoming light signals away from the plane (of the grating itself), this dictates that the axis of the laser or the optical fiber (or

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the line connecting the two) must be offset from the grating plane (in a trench or on a raised platform on the substrate), which meets the limitations disclosed in claims 8 and 13.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poguntke et al. in view of US Patent 5,978,139 to Hatakoshi et al. Poguntke teaches all elements of an optical coupler as claimed by the applicant except for the diffractive grating being a concentric blazed grating. Hatakoshi et al. teach that a concentric blazed grating 11a having a light focusing function. (See at least **Fig. 1** and its descriptions) It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the concentric blazed grating by Hatakoshi in place of the diffractive grating as part of the optical coupler. The motivation would be that the concentric blazed grating has high diffraction efficiency.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poguntke et al. in view of US Patent 5,082,629 to Burgess, Jr. et al. Poguntke teaches all elements of an optical coupler as claimed by the applicant except for additional gratings coupled to the active (input) and passive (output) waveguides. Burgess, Jr. et al. teach two gratings **4 & 5** coupled to input and output optical signals. (See at least **Figure 1** and its descriptions) It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the additional gratings by Burgess, Jr. in place of the diffractive grating as part of the optical coupler. The motivation would be these additional gratings help collimate or disperse light guided out of or into the passive/active waveguides.

Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poguntke et al. and Burgess, Jr. et al. Though claims 14-20 describe a method of making an optical coupler, Poguntke and Burgess, Jr. teach all the structural elements limitations of an optical coupler as claimed by the applicant, and the method merely states the most logical and obvious way of making the same. One having ordinary skill in the art would be motivated to use the method for the reasons of ease of manufacturing.

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Poguntke et al. and Hatakoshi et al. teach the optical coupler with concentric blazed grating except for the grating being superposed with a radial grating pattern (Fig. 4 of the instant application). Prior art does not suggest any obvious motivation to create and combine the pattern as disclosed by the applicant. It is the examiner's opinion that the prior art of record, taken alone or in combination, fails to disclose or render obvious in combination with the rest of the limitations of the base claim.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The applicant is encouraged to carefully review all prior art cited as references in PTO-892 before responding to the current office action.

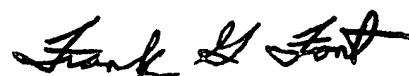
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlie Peng whose telephone number is (571) 272-2177. The examiner can normally be reached on 9 am - 6 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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